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- ⑤④ **System comprising a disc-record player and a removable holder intended for holding a disc, a holder suitable for use in the system and a disc-record player provided with a loading mechanism suitable for use in the system.**

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EP-A- 0 129 292 EP-A- 0 145 051
EP-A- 0 164 788 EP-A- 0 170 957
DE-A- 3 135 795 FR-A- 2 437 672
GB-A- 504 035 GB-A- 2 139 800

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Description

The invention relates to a system comprising a disc-record player and a removable holder intended for holding a disc and cooperating with the disc-record player and provided with at least two opposed holding elements comprising holding means constructed to engage a disc at its edge inside the holder, each of said holding elements being a movable holding element arranged on an actuating element and adjustable to at least a first and a second holding position relative to the facing other holding element in order to hold discs of substantially different diameters and displaceable out of a holding position to receive or release the disc.

The invention further relates to a removable holder suitable for use in the system and to a disc-record player provided with a loading mechanism suitable for use in the system.

A system is known from EP-A-145,051 which system comprises a holder, which is adapted to hold discs of one specific diameter, for example a 12 cm diameter Compact Disc, the disc being held at its circumferential edge. Such a holder can be used for packaging discs and can also be employed as an easy-to-handle means for loading discs into or removing them from a disc-record player, in which case the holder must be adapted to the loading mechanism of the disc-record player.

Recently a Compact Disc having a comparatively short playing time has been proposed, which disc has a comparatively small diameter of approximately 8 cm and can be played without adapting the playing means of the Compact Disc player. However, since holding is effected at the circumferential edge and on account of the arrangement of the holding elements relative to each other, said known holder is not suitable for indiscriminately handling discs of comparatively large or small diameter. In order to enable discs of both types to be loaded into a disc-record player by means of holder adapted to the loading mechanism of the player, holders have been proposed in two versions having equal outer dimensions but having holding elements arranged to suit discs of different diameters. However, the use of different holders is bound to give rise to confusion and requires additional attentiveness both from the supplier and from the user. If the holders are to be used as means for loading discs of both diameters, holders in two different versions are needed, which may be inconvenient in use and which is also cost-increasing.

A system as described in the opening paragraph is known from JP-A-59-195376. The known system comprises an optical disc record reproducer comprising a tiltable disc holder. The holder is provided with two opposed movable holding elements, which are mutually connected by means of

a coupling mechanism having a lever. One disc size switching knob is provided to turn both holding elements when the disc holder is in an opened position.

It is an object of the invention to provide a system being a combination of a disc-record player and a removable disc holder intended for cooperation with the disc-record player, a disc being held at its circumferential edge in the holder, in such a way that the holder can indiscriminately hold discs of comparatively large or small diameters, the disc-record player being provided with means for release a disc from the holder regardless of the disc diameter.

To this end the system in accordance with the invention is characterized in that each of the actuating elements of the removable holder is provided with a coupling means and the disc-record player is provided with a loading mechanism comprising actuating means for coupling to the coupling means of each of the actuating elements, the actuating means actuating separately each of the actuating elements from a fixed location, after insertion of the holder into the disc-record player, for moving apart the holding elements, both in the first and in the second holding position of the holding elements, over a substantially equal distance in order to receive or release the disc.

The holder of the system in accordance with the invention permits discs of substantially different diameters to be held at their circumferential edges, adaptation to the disc diameter being effected merely by adjusting the holding elements to either of their holding positions. Preferably, the movable holding elements are always situated within the outer circumference of the holder in every holding position. Thus, regardless of the adjustment of the holding elements the holder can always have the same circumferential dimensions, so that the discs holder can always be inserted in the same enclosure, for example a storage case. This is also of great advantage for loading a disc into a disc-record player, when the loading mechanism can always cooperate with a holder of the same circumferential shape, regardless of the disc diameter. Thus, when the holder is used with discs of different diameters the loading mechanism of the disc-record player need not be adapted to the diameter of a disc to be loaded. Another advantage is that the supplier and the user have to deal with only one type of holder, which excludes confusion as to the type of holder.

The constant displacement of the coupling means of the actuating element has the advantage that in order to release the disc the actuating means of the loading mechanism always have to be moved over the same distance regardless of the diameter of the inserted disc. Thus, the loading

mechanism is capable of loading discs of a first or a second diameter into the disc-record player without any adaptation.

In this respect an embodiment of the system in accordance with the invention is characterized in that both in the first and in a second holding position of the movable holding elements of the holder the coupling means are situated at substantially the same location in the holder. The use of holding elements comprising coupling means which remain at substantially the same location in both holding positions of the holding elements ensures that after the holder has been introduced into the disc-record player the actuating means of the loading mechanism of the disc-record player can simply couple to the actuating element and move the holding elements in order to release the disc from the holder. As a result of the fixed location of the coupling means the loading mechanism need not be adapted to the diameter of the inserted disc. A fixed location of the coupling means is also advantageous for other reasons. An advantage is, for example, that during insertion of the disc into the holder the user can move the holding element by applying with his fingers a force at a fixed location of the actuating element. This is also of advantage for an enclosure which is adapted to receive the holder and which may be provided with latching means adapted to said fixed location of the coupling means in order to latch the holding element when said enclosure contains a holder.

An embodiment of the system in accordance with the invention is characterized in that an actuating element and a movable holding element of the holder form a single unit, the holder being provided with a holder body on which said unit is arranged, and said unit being movable between the two holding positions relative to said holder body. This combination of an actuating element and a holding element to a constructional unit has the advantage that the movement of the holding element to release the disc and the adjustment of the holding element to one of the holding positions can be effected in one operation, for example by actuating the actuating element at the coupling means.

An embodiment of the system in accordance with the invention is characterized in that the holder comprises a holder body and the actuating elements form part of said holder body, the holding elements being movable relative to the holder body and the actuating elements being movable between the two holding positions. If the actuating element forms part of the holder body the actuating element always occupies the same position when a disc is present, which simplifies actuation during loading into a player.

An embodiment of the system in accordance with the invention is characterized in that the hold-

ing means of the movable holding elements of the holder comprise first and second spaced-apart holding portions adapted to cooperate with the circumferential edge of discs of a first and a second diameter respectively. The use of spaced-apart holding portions provides an easy-to-implement possibility of receiving and holding discs of different diameters in the holder.

In this respect an embodiment of the system in accordance with the invention is characterized in that the holding elements are pivotably arranged on the holder body, adjustment from one holding position to the other being effected by pivoting the holding elements, which pivotable holding elements are situated within the outer circumference of the holder in every holding position viewed in a plan view at the holder. The use of a pivotable holding element whose movement within the holder circumference is limited provides an easily adjustable construction for a holding element. Such a holding element may be constructed as a bell-crank lever which can be compact and which can rotate within the contours of the holder body.

An embodiment of the system in accordance with the invention is characterized in that the movable holding elements of the holder are constructed as a member which is elastic over at least a part of its length and which can be deflected from one holding position to the other holding position through an unstable dead-centre position. The use of an at least partly elastic member results in a simple and cheap possibility of adjusting the holding element. Such a holding element may, for example, be moulded from a plastics to form an integral unit with the holder body. Adjustment from one position to the other by the user is simple because the member snaps beyond the unstable dead-centre position. The use of an elastic member further has the advantage that in the holding position the member with the holding means is urged against the circumferential edge of the disc without the use of additional spring means.

In this respect an embodiment of the system in accordance with the invention is characterized in that the member is an elastic strip which has both ends connected to the remainder of the holder and which comprises a central portion on which the holding means are arranged. In such an embodiment the holding element and the holding means are of a simple and cheap construction.

It is to be noted that instead of two movable holding elements other numbers of elements may be used. It is possible for example to employ three or four actuating elements in the holder.

It is to be noted further, that it is favourable to use a package comprising a holder of the system in accordance with the invention in which a disc is held at its circumferential edge by the holding

means. The advantage of such a package is that it can be used with discs of comparatively large or small diameter. Consequently, the supplier and the user have to deal with only one type of package for discs of both diameter.

Embodiments of the invention will now be described in more detail, by way of example, with reference to the drawings. In the drawings:

Figs. 1A and 1B are plan views of a holder in accordance with the invention, the holding elements being shown in a first and a second holding position respectively;

Figs. 2A and 2B are plan views of a holder in accordance with a second embodiment, the holding elements being shown in a first and a second holding position respectively;

Figs. 3A and 3B are plan views of a holder in accordance with the third embodiment, the holding elements being shown in a first and a second holding position respectively;

Figs. 4A and 4B are plan views of a holder in accordance with the fourth embodiment, the holding elements being shown in two different holding positions;

Figs. 5A and 5B are plan views of a holder in accordance with a fifth embodiment, the holding elements again being shown in two different holding positions;

Figs. 6A and 6B are plan views of a sixth embodiment of a holder, the holding elements again being shown in two different holding positions;

Figs. 7A, 7B and 7C are plan views of a modification of the holder shown in Fig. 1, the holding elements being shown in three different holding positions.

Figs. 1A and 1B show a holder 1 comprising a U-shaped holder body 2 on which actuating elements 4 and holding elements 5, forming constructional units 3, are slidably guided. The constructional units 3 are adjustable to two holding positions of the holding element 5, namely a first holding position as shown in Fig. 1A and a second holding position as shown in Fig. 1B. Each constructional unit 3 comprises two sliding plates disposed at opposite sides of the holder body and interconnected by holding means 6, which are constructed, for example, as yo-yos and which are arranged between the two sliding plates at the location of the holding element 5. In a manner, not shown, the sliding plates can be interconnected at other locations and the holder body may be formed with slots, not shown, to enable the constructional unit 3 to be moved. The constructional units 3 are arranged mirror-symmetrically relative to a plane which extends through the base of the holder body 2 and parallel to the limbs of the holder body. On its holder body the holder is

provided with positioning means, shown only partly and including upright edges 7 on the two limbs of the holder body. Moreover, the actuating elements 4 are provided with coupling means, which in one of the embodiments shown comprise apertures 8. Thus, each actuating element has two apertures 8. The distance between the apertures is selected in such a way that when the actuating element 4 is moved parallel to the double arrow 9 from the position shown in Fig. 1A, in which a disc of comparatively large diameter is held, to the position shown in Fig. 1B, in which a disc of comparatively small diameter is held, the aperture 8A in Fig. 1B has reached the same position relative to the holder body as occupied by the aperture 8B in Fig. 1A. Thus it is achieved that each time that the holder is placed into a loading mechanism, not shown, of a disc-record player the coupling means can couple to actuating means of the disc-record player without adaptation of the position of the actuating means, so that the units 3 can simply be moved apart by the actuating means to release the disc from the holding means. In every holding position of the holding elements the displacement necessary to release the disc is the same, so that the actuating means always have to perform the same travel, regardless of the diameter of the disc being held. Thus, the holder 1 has the advantage that it can be used universally for holding discs of two substantially different diameters and, in addition, the loading mechanism of a disc-record player can load discs of a first and a second diameter onto the turntable without any further adaptation. This results in a simplified construction for such a loading mechanism. These advantages render the holder 1 suitable for holding optical audio discs of the Compact Disc type, which may have diameters of 12 and 8 cm. However, the holder in accordance with the invention also enables discs of other types, such as video discs of different diameter, to be held. Further, it is to be noted that in addition to the positioning means shown, comprising the edges 7, further positioning means, not shown, may be provided. For example, the base of the holder body may be provided locally with raised portions which in the holding positions of the units 3 snap into the apertures 8 to position the holding elements 5. It may then be advantageous to utilise a slightly elastic material for the constructional units 3, so that a certain pretension is exerted on the sliding plates at opposite sides of the holder body 1. Moreover, positioning can be achieved by making the ends 2A of the limbs of the holder body 2 slightly higher so that the holding elements 5 are also guided at this location. It may also be advantageous to make the units 3 and the holder body 2 slightly elastic, to further facilitate the release of the disc in the holding position shown in Fig. 1A. The

two limbs of the holder body 2 then merely have to be bent apart.

In the embodiment of the holder shown in Figs. 2A and 2B a holder body 12 comprises sections 14A and 14B which are slidable relative to one another parallel to the double arrow 9, the section 14A comprising for example projections, not shown, which are engageable in the section 14B. In this embodiment the body sections 14A and 14B also constitute actuating elements of the holder 1 and are provided with coupling elements in the form of apertures 18 situated at or near the corners of the holder body 12. In the present embodiment the body sections 14A and 14B again carry holding elements 15 which are arranged mirror-symmetrically relative to one another and which each comprise two plates interconnected by holding means 16 which hold the disc at its circumference. In the present embodiment the holding means are also constructed as yo-yos, which is favourable for clamping at the disc periphery. The holder body 12 also carries positioning means, of which only the grooves 17A and 17B are shown, in which grooves the holding element 15 is situated in the respective holding positions. Again it is advantageous if the holding elements are made of a slightly elastic material, enabling the holding elements to snap into the grooves. The advantage of this embodiment of the holder in accordance with the invention is that the actuating elements can be moved to release the disc, whilst the holding elements occupy a fixed position on the associated actuating elements. Another advantage is that the apertures 18 always occupy a fixed position when the holder is placed into a loading mechanism, so that the actuating means of the loading mechanism can couple simply to the coupling means of the actuating elements. In the present embodiment the actuating means again perform the same travel to release the disc, regardless of this diameter.

Figs. 3A and 3B show a holder 1, comprising a L-shaped holder body 22 on which constructional units 23 are arranged mirror-symmetrically relative to one another, which units each comprise an actuating element 24 which is pivotable about a pivot pin 2A on the base of the holder body 22. Each actuating element 24 carries a holding element 25, said holding element 25 being mounted on the actuating element 24 so as to be pivotable about a pivot pin 25A which extends substantially parallel to the pivot pin 24A. Each holding element comprises holding means 26. These means are constructed as yo-yos in the same way as in the preceding embodiments. In the present embodiment the actuating elements 24 have apertures 28 forming coupling means adapted to cooperate with actuating means of the loading mechanism, not shown, of a disc-record player. The actuating means 24 are

adjustable by a pivotal movement about the pivot 24A in the direction indicated by the double arrow 29, the holding element being adjustable to the first holding position as shown in Fig. 3A and the second holding position as shown in Fig. 3B. In the same way as in the embodiment shown in Fig. 1 one of the apertures 28A and 28B occupies a specific position relative to the holder body 22 after adjustment, permitting the actuating means to cooperate with the adjusting means from a fixed location in order to release the disc during loading in the loading mechanism of the disc-record player. Another advantage of this embodiment is that the constructional units 23 are situated outside the circumference of the holder 1 in both positions of the holding elements 25, so that these elements do not hinder loading and a simple enclosure may be used for the storage of the holder. In this embodiment the actuating element 24 can be latched in the respective holding positions in a manner not shown; again it is possible to use local raised portions on the holder body which snap into one of the apertures 28. Alternatively, the embodiment shown in Fig. 3 may be combined with a holder body comprising two sections as in Fig. 2, the two sections of the holder body being slidable relative to one another. Thus, the actuating elements 24 are used for adjusting the holding elements 25 and the disc can be released by moving the sections of the holder body 22 relative to one another. For this purpose this holder body must then be provided with coupling means, such as the apertures 18 in Fig. 2.

Figs. 4A and 4B show an embodiment of the holder 1 comprising a holder body 32 which at its four sides surrounds the disc, the holder body 32 carrying slidable constructional units 33. These units are slidably guided in the directions indicated by the double arrows 39. Each constructional unit 33 comprises an actuating element 34 and a holding element 35, which are suitably constructed as an integrated unit. Again the holding element 35 comprises holding means in the form of yo-yos. Each actuating element 34 comprises two L-shaped members, a basic portion being formed with apertures 38 which again serve as coupling means adapted to cooperate with actuating means of the loading mechanism of a disc-record player. In the same way as in the embodiment shown in Figs. 1 and 2 the apertures 38 comprise an aperture 38B in Fig. 4A and an aperture 38A in Fig. 4B at a specific location of the holder body 32, thus enabling actuating means of the loading mechanism which are arranged at a fixed location to cooperate with the holder without any further adaptation, regardless of the position of the holding element 35. In the present case adjustment from the position shown in Fig. 4A to that shown in Fig.

4B is effected by moving the elements 33 in opposite directions relative to one another parallel to the arrows 39. In this case the actuating elements 34 can also be latched in position by engagement of raised portions on the holder body 32 in the apertures 38.

The embodiment of the holder 1 shown in Figs. 5A and 5B again comprises a holder body 42 which surrounds the disc and on which constructional units 43 are arranged at or near the corners, which units are constructed as bell-crank levers. The units 43 constitute actuating elements 44 which also function as holding elements. To this end the units comprise holding means 46 constructed as yo-yos at or near the free ends of the lever arms, the units being pivotable about pivot pins 44A. The pivotal movement is possible by forming the holder body 42 with slots 42A and 42B in which the means 46 are movable. By pivoting the unit 43 from the position shown in Fig. 5A to the position shown in Fig. 5B one holding means 46 takes place of the other holding means 46. Further, coupling means 48 are provided which in the present embodiment comprise a toothed wheel 48 which is coaxial with the pivot pin 44A. Preferably, the toothed wheel is arranged in such a way that when the holder 1 is placed in a loading mechanism actuating means of the loading mechanism mesh with the toothed wheel 48 to drive said wheel so as to release the disc from the holder. As a result of this, the actuating element 44 of the unit 43 is moved in the direction indicated by the double arrow 49. Thus the actuating means of the loading mechanism drive all four toothed wheels 48 simultaneously. The present embodiment comprises latching means, not shown, to latch the holding element associated with the unit 43 in its two holding positions. This may be effected, for example, by providing the slots 42A and 42B at their ends with clamping means which are adapted to cooperate with the holding means 46. It is to be noted that in the present embodiment, like in the embodiment shown in Fig. 2, it is also possible to construct the holder body 42 as two sections which are slidable relative to one another, to enable the holding elements 44 to be adjusted so as to release the disc during loading in the disc-record player. Instead of four units 43 it is also possible to use different numbers of units, for example three.

Figs. 6A and 6B show an embodiment of a holder 1 in which a holder body 52 is divided into two body sections 52A and 52B, which are slidable relative to one another in the same way as in the embodiment shown in Fig. 2. For adjusting the holder-body sections apertures 58 are formed at or near the corners, which apertures also serve as coupling means for the body sections 52A and 52B in order to move the two body sections relative to

one another in a loading mechanism. The body sections, which also serve as actuating elements, carry holding elements 55 which are constructed as strip shaped members which at both ends are connected to the body sections 52A and 52B respectively, central portions of the members 55 carrying holding elements 56, which are again constructed as yo-yos. In the central portion of the member 55 a slot (not shown) is formed through which the disc edge is engageable, so that said member does not obstruct holding. It is advantageous of manufacture the member 55 together with the holding means 56 as an integral unit from a plastics. The member 55 is elastic over the greater part of its length and can be deflected from the position shown in Fig. 6A through an unstable dead-centre position to the other holding position shown in Fig. 6B. Thus, moving the holding element 55 from one holding position to the other is effected very simply, the disc being released by moving the body sections 52A and 52B apart in a direction parallel to the double arrow 59.

The embodiment of the holder 1 shown in Figs. 7A, 7B and 7C largely corresponds to that shown in Fig. 1. The difference is the presence of three apertures 8 in each actuating element 8, an aperture 8C being engaged by a raised portion, not shown, in the position shown in Fig. 7B. Thus, the holder 1 in the present embodiment is also capable of holding a disc of intermediate diameter, for example 10 cm. Again it is achieved that in the position shown in Figs. 7A, 7B and 7C the actuating means of a disc-record player are engageable in apertures 8B, 8C and 8A respectively, at the same location of the holder without any further adaptation.

The holder 1 shown in the various embodiments is very advantageous because it is capable of holding discs of substantially different diameter without a change in the outer dimensions of the holder or without an adaptation of the loading mechanism of the disc-record player. This is a major advantage, for example, when such a holder is used in conjunction with players operating in accordance with the "letter box" principle, the holder being inserted through a front opening in a player. Moreover, the present holder is suitable for universal use as a package or storage means, because only one type of holder is adequate to hold discs of different diameters. It is to be noted that it is alternatively possible to arrange one holding element stationarily and to make only one holding element movable to two holding positions. In that case the displacement of the holding element between its two holding positions is larger than in the embodiments described in the foregoing. In addition, the holder may also be used for holding discs of diameters other than 8 and 12 cm,

for example discs of 12 and 25 cm diameter.

Claims

1. System comprising a disc-record player and a removable holder (1) intended for holding a disc and cooperating with the disc-record player and provided with at least two opposed holding elements (5, 15, 25, 35, 55) comprising holding means (6, 16, 26, 36, 46, 56) constructed to engage a disc at its edge inside the holder, each of said holding elements being a movable holding element arranged on an actuating element (4, 14A, B, 24, 34, 44, 52A, B) and adjustable to at least a first and a second holding position relative to the facing other holding element in order to hold discs of substantially different diameters and displaceable out of a holding position to receive or release the disc, characterized in that each of the actuating elements of the removable holder is provided with a coupling means (8, 18, 28, 38, 48, 58) and the disc-record player is provided with a loading mechanism comprising actuating means for coupling to the coupling means of each of the actuating elements, the actuating means actuating separately each of the actuating elements from a fixed location, after insertion of the holder into the disc-record player, for moving apart the holding elements, both in the first and in the second holding position of the holding elements, over a substantially equal distance in order to receive or release the disc.
2. System as claimed in Claim 1, characterized in that both in the first and in the second holding position of the movable holding elements of the holder the coupling means are situated at substantially the same location in the holder (Figs. 2, 5, 6).
3. System as claimed in Claim 1 or 2, characterized in that an actuating element and a movable holding element of the holder form a single unit (3, 23, 33, 43), the holder being provided with a holder body (2, 22, 32, 42) on which said unit is arranged, and said unit being movable between the two holding positions relative to said holder body (Figs. 1, 3, 4, 5).
4. System as claimed in Claim 1 or 2, characterized in that the holder comprises a holder body (12, 52) and the actuating elements form part of said holder body, the holding elements being movable relative to the holder body and the actuating elements being movable between the two holding positions (Figs. 2, 6).
5. System as claimed in Claim 1, 2, 3 or 4, characterized in that the holding means of the movable holding elements of the holder comprise first and second spaced-apart holding portions (46) adapted to cooperate with the circumferential edge of discs of a first and a second diameter respectively (Fig. 5).
6. System as claimed in Claim 5, characterized in that the holding elements are pivotably arranged on the holder body, adjustment from one holding position to the other being effected by pivoting the holding elements, which pivotable holding elements are situated within the outer circumference of the holder in every holding position viewed in a plan view at the holder (Fig. 5).
7. System as claimed in Claim 1, 2, 3 or 4, characterized in that the movable holding elements of the holder are constructed as a member which is elastic over at least a part of its length and which can be deflected from one holding position to the other holding position through an unstable dead-centre position (Fig. 6).
8. System as claimed in Claim 7, characterized in that the member is an elastic strip (55) which has both ends connected to the remainder of the holder and which comprises a central portion on which a holding element is arranged (Fig. 6).
9. Holder suitable for use in a system as claimed in Claim 1, intended for holding a disc and provided with at least two opposed holding elements comprising holding means constructed to engage a disc at its edge inside the holder, each of said holding elements being a movable holding element arranged on an actuating element and adjustable to at least a first and a second holding position relative to the facing other holding element in order to hold discs of substantially different diameters and displaceable out of a holding position to receive or release the disc, wherein each of the actuating elements is provided with a coupling means for coupling to actuating means of a loading mechanism, the actuating elements being actuatable separately from a fixed location for moving apart the holding elements, both in the first and in the second holding position of the holding elements, over a substantially equal distance in order to receive or release the disc.

10. Disc-record player provided with a loading mechanism suitable for use in a system as claimed in Claim 1, where the disc-record player is provided with a loading mechanism comprising actuating means for coupling to the coupling means of each of the actuating means, the actuating means actuating separately each of the actuating elements from a fixed location, after insertion of the holder into the disc-record player, for moving apart the holding elements, both in the first and in the second holding position of the holding elements, over a substantially equal distance in order to receive or release the disc.

Patentansprüche

1. System mit einem Plattenspieler und mit einer entfernbaren Halterung (1) zum Haltern einer Platte und zum Zusammenarbeiten mit dem Plattenspieler und mit wenigstens zwei einander gegenüber liegenden Halterungselementen (5, 15, 25, 35, 55) mit Halterungsmitteln (6, 16, 26, 36, 46, 56) zum Zusammenarbeiten mit einer Platte an deren Umfang innerhalb der Halterung, wobei jedes der genannten Halterungselemente ein bewegliches Halterungselement ist, das auf einem Betätigungselement (4, 14A, B, 24, 34, 44, 52A, B) angeordnet ist und in mindestens einer ersten und einer zweiten Halterungslage gegenüber dem gegenüberliegenden anderen Halterungselement einstellbar ist um Platten mit wesentlich unterschiedlichen Durchmessern zu halten und aus einer Halterungslage verschiebbar ist um die Platte zu erhalten bzw. sie frei zu geben, dadurch gekennzeichnet, daß jedes der Betätigungsmittel der entfernbaren Halterung mit einem Kupplungsmittel (8, 18, 28, 38, 48, 58) versehen ist und daß der Plattenspieler mit einem Lademechanismus versehen ist, der Betätigungsmittel aufweist zur Kupplung mit dem Kupplungsmittel jedes der Betätigungselemente, wobei die Betätigungsmittel einzeln jedes der Betätigungselemente aus einer festen Lage, nach Einführung der Halterung in den Plattenspieler, betätigen zum auseinander bewegen der Halterungselemente, und zwar in die erste sowie zweite Halterungslage der Halterungselemente, über einen nahezu gleichen Abstand, um die Platte zu erhalten bzw. dieselbe frei zu geben.

2. System nach Anspruch 1, dadurch gekennzeichnet, daß in der ersten sowie in der zweiten Halterungslage der beweglichen Halterungselemente der Halterung die Kupplungsmittel sich in nahezu derselben Lage in der Halterung befinden (Fig. 2, 5, 6).

3. System nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß ein Betätigungselement und ein bewegliches Halterungselement der Halterung eine Baueinheit (3, 23, 33, 43) bilden, wobei die Halterung mit einem Halterungskörper (2, 22, 32, 42) versehen ist, auf dem die genannte Einheit angeordnet ist und wobei diese Einheit zwischen den beiden Halterungslagen gegenüber dem Halterungskörper beweglich ist (Fig. 1, 3, 4, 5).

4. System nach Anspruch 1 oder 2, dadurch gekennzeichnet, daß die Halterung einen Halterungskörper (12, 52) aufweist und daß die Betätigungselemente einen Teil des genannten Halterungskörpers bilden, wobei die Halterungselemente gegenüber dem Halterungskörper beweglich sind und wobei die Betätigungselemente zwischen den beiden Halterungslagen beweglich sind (Fig. 2, 6).

5. System nach Anspruch 1, 2, 3 oder 4, dadurch gekennzeichnet, daß die Halterungsmittel der beweglichen Halterungselemente der Halterung erste und zweite in einem Abstand voneinander liegende Halterungsteile (46) aufweisen zum Zusammenarbeiten mit dem Umfangsrand von Platten mit einem ersten bzw. zweiten Durchmesser (Fig. 5).

6. System nach Anspruch 5, dadurch gekennzeichnet, daß die Halterungselemente schwenkbar auf dem Halterungskörper angeordnet sind, wobei die Einstellung von der einen in die andere Halterungslage durch Drehung der Halterungselemente erfolgt, wobei diese drehbaren Halterungselemente in Draufsicht der Halterung gesehen in jeder Halterungslage innerhalb des Außenumfanges der Halterung liegen (Fig. 5).

7. System nach Anspruch 1, 2, 3 oder 4, dadurch gekennzeichnet, daß die beweglichen Halterungselemente der Halterung als ein Bauelement ausgebildet sind, das über wenigstens einen Teil der Länge elastisch ausgebildet ist und durch eine instabile Totpunktlage hindurch aus der einen Halterungslage in die andere Halterungslage biegsam ist (Fig. 6).

8. System nach Anspruch 7, dadurch gekennzeichnet, daß das Bauelement ein elastischer Streifen (55) ist, der an den beiden Enden mit dem übrigen Teil der Halterung verbunden ist und der einen Mittenteil aufweist, auf dem ein Halterungselement vorgesehen ist (Fig. 6).

9. Halterung zum Gebrauch bei einem System nach Anspruch 1 zum Haltern einer Platte und mit wenigstens zwei einander gegenüber liegenden Halterungselementen mit Halterungsmitteln zum Zusammenarbeiten mit einer Platte an deren Umfang innerhalb der Halterung, wobei jedes der genannten Halterungselemente ein bewegliches Halterungselement ist, das auf einem Betätigungselement angeordnet ist und in mindestens einer ersten und einer zweiten Halterungslage gegenüber dem gegenüberliegenden anderen Halterungselement einstellbar ist um Platten mit wesentlich unterschiedlichen Durchmessern zu halten und aus einer Halterungslage verschiebbar ist um die Platte zu erhalten bzw. sie frei zu geben, wobei jedes der Betätigungsmittel zur Kupplung der Betätigungsmittel eines Lademechanismus mit einem Kupplungsmittel versehen ist und daß der Plattenspieler mit einem Lademechanismus versehen ist, wobei die Betätigungsmittel einzeln aus einer festen Lage betätigbar sind zum auseinander bewegen der Halterungselemente, und zwar in die erste sowie zweite Halterungslage der Halterungselemente, über einen nahezu gleichen Abstand, um die Platte zu erhalten bzw. dieselbe frei zu geben.
10. Plattenspieler mit einem Lademechanismus zum Gebrauch bei einem System nach Anspruch 1, wobei der Plattenspieler mit einem Lademechanismus versehen ist, der Betätigungsmittel aufweist zum Kuppeln mit den Kupplungsmitteln jedes der Betätigungsmittel, wobei die Betätigungsmittel einzeln jedes der Betätigungselemente betätigen und zwar aus einer ersten festen Lage, nach Eingabe der Halterung in den Plattenspieler, zum Auseinander Bewegen der Halterungselemente, in der ersten und in der zweiten Halterungslage der Halterungselemente, über einen nahezu gleichen Abstand zum Empfangen bzw. Freigeben der Platte.

Revendications

1. Système comportant un lecteur de disque et un support amovible (1) conçu pour recevoir un disque et pour coopérer avec le lecteur de disque, support qui est muni d'au moins deux éléments de retenue opposés (5, 15, 25, 35, 55) comportant des moyens de retenue (6, 16, 26, 36, 46, 56) agencés pour retenir un disque par son bord à l'intérieur du support, chacun desdits éléments de retenue étant un élément mobile disposé sur un élément de déplacement (4, 14A, B, 24, 34, 44, 52A, B), élément mobile qui peut être réglé dans au moins une

première et une seconde position de retenue par rapport à l'autre élément de retenue opposé pour retenir des disques de diamètres sensiblement différents et qui peut être sorti d'une position de retenue pour recevoir ou libérer le disque, caractérisé en ce que chacun des éléments de déplacement du support amovible est muni de moyens de couplage (8, 18, 28, 38, 48, 58) et en ce que le lecteur de disque est muni d'un mécanisme de chargement comportant des moyens de manoeuvre pour le couplage aux moyens de couplage de chacun des éléments de déplacement, les moyens de manoeuvre manoeuvrant séparément chacun des éléments de déplacement à partir d'un endroit fixe, après l'introduction du support dans le lecteur de disque, pour déplacer séparément les éléments de retenue, tant dans la première que la seconde position de retenue des éléments de retenue, sur une distance sensiblement égale pour recevoir ou libérer le disque.

2. Système selon la revendication 1, caractérisé en ce que, à la fois dans la première et dans la seconde position de retenue des éléments de retenue mobiles du support, les moyens de couplage sont situés sensiblement dans le même emplacement du support. (Figures 2, 5, 6).
3. Système selon la revendication 1 ou 2, caractérisé en ce que qu'un élément de déplacement et un élément de retenue mobile du support forment un ensemble d'une seule pièce (3, 23, 33, 43), le support comportant un corps de support (2, 22, 32, 42) sur lequel est disposé ledit ensemble, qui peut être déplacé par rapport audit corps de support, entre les deux positions de retenue (Figures 1, 3, 4, 5).
4. Système selon la revendication 1 ou 2, caractérisé en ce que le support comporte un corps de support (12, 52) et les éléments de déplacement font partie dudit corps de support, les éléments de retenue pouvant être déplacés par rapport au corps de support et les éléments de déplacement pouvant être déplacés entre les deux positions de retenue (Figures 2, 6).
5. Système selon la revendication 1, 2, 3 ou 4, caractérisé en ce que les moyens de manoeuvre des éléments de retenue mobiles du support comportent des première et seconde parties de retenue séparées (46) conçues pour coopérer avec le bord périphérique de disques ayant respectivement des premier et second diamètres (Figure 5).

6. Système selon la revendication 5, caractérisé en ce que les éléments de retenue sont disposés libres en pivotement sur le corps de support, le réglage d'une position de retenue à l'autre étant effectué en faisant pivoter les éléments de retenue et, en vue de dessus du support, les éléments de retenue pivotants étant situés, dans chaque position de retenue, en deçà de la périphérie extérieure du support (Figure 5). 5 10
7. Système selon la revendication 1, 2, 3 ou 4, caractérisé en ce que les éléments de retenue mobiles du support sont réalisés sous la forme d'un organe élastique sur au moins une partie de sa longueur et qui peut être amené par flexion d'une position de retenue à l'autre, en passant par une position de point mort instable (Figure 6). 15 20
8. Système selon la revendication 7, caractérisé en ce que l'organe élastique est une bande élastique qui, à ses deux extrémités est reliée au reste du support et qui présente une partie centrale sur laquelle sont disposés les moyens de retenue (Figure 6). 25
9. Support convenant pour être utilisé dans un système selon la revendication 1, destiné recevoir un disque et muni d'au moins deux éléments de retenue opposés comportant des moyens de retenue agencés pour retenir un disque par son bord à l'intérieur du support, chacun desdits éléments de retenue étant un élément mobile disposé sur un élément de déplacement, élément mobile qui peut être réglé dans au moins une première et une seconde position de retenue par rapport à l'autre élément de retenue opposé pour retenir des disques de diamètres sensiblement différents et qui peut être sorti d'une position de retenue pour recevoir ou libérer le disque, dans lequel chacun des éléments de déplacement est muni de moyens de couplage à des moyens de manoeuvre d'un mécanisme de chargement, les éléments de déplacement pouvant être manoeuvrés séparément à partir d'un emplacement fixe pour écarter les éléments de retenue l'un de l'autre, dans la première ainsi que la seconde position de retenue des éléments de retenue, sur une distance sensiblement égale pour recevoir ou libérer le disque. 30 35 40 45 50
10. Lecteur de disque muni d'un mécanisme de chargement convenant pour être utilisé dans un système selon la revendication 1, dans lequel le lecteur de disque est muni d'un mécanisme de chargement comportant des moyens 55

de manoeuvre pour le couplage aux moyens de couplage de chacun des moyens de manoeuvre, les moyens de manoeuvre manoeuvrant séparément chacun des éléments de déplacement à partir d'un emplacement fixe, après l'introduction du support dans le lecteur de disque, pour écarter les éléments de retenue l'un de l'autre, dans la première ainsi que dans la seconde position de retenue des éléments de retenue, sur une distance sensiblement égale pour recevoir ou libérer le disque.

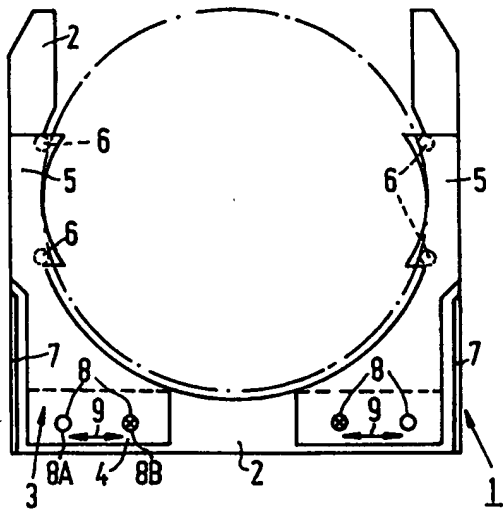


FIG. 1A

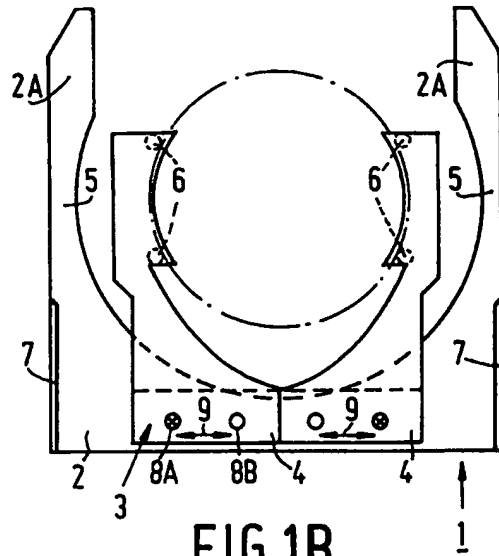


FIG. 1B

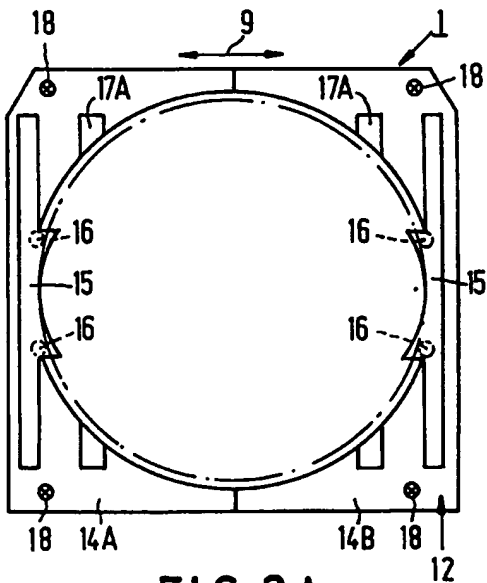


FIG. 2A

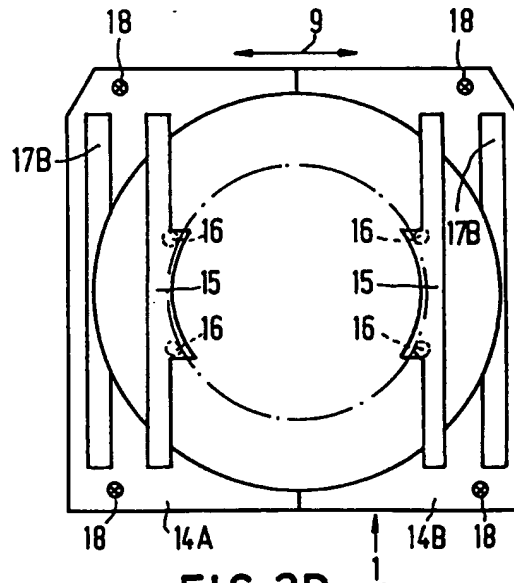


FIG. 2B

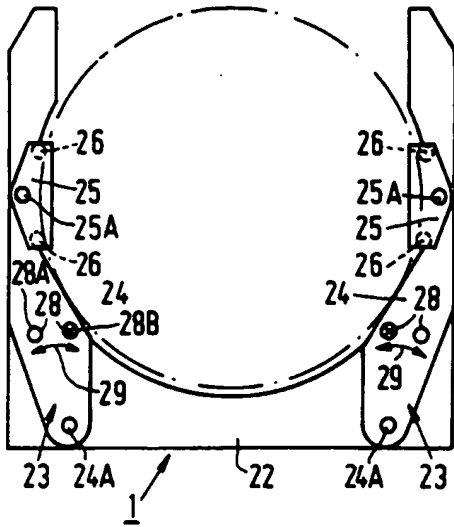


FIG. 3A

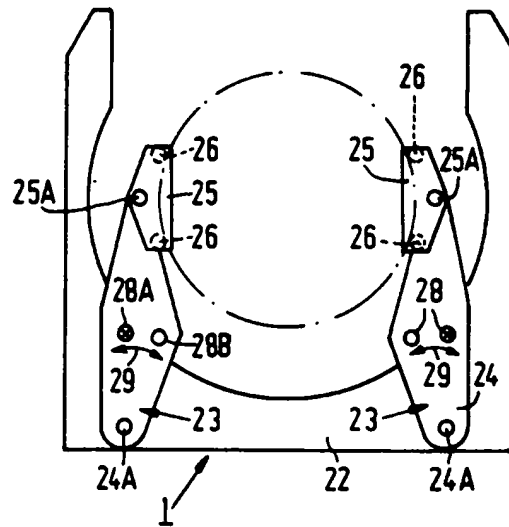


FIG. 3B

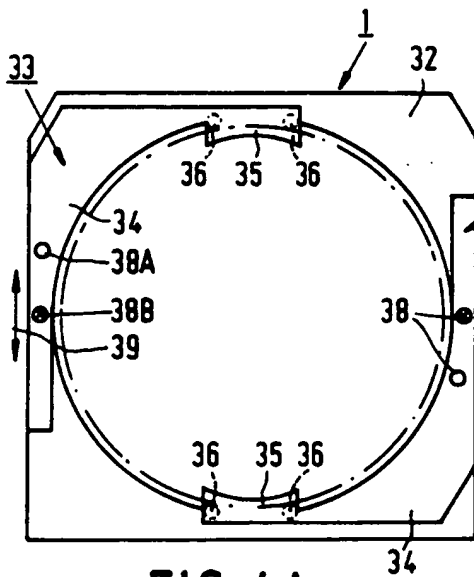


FIG. 4A

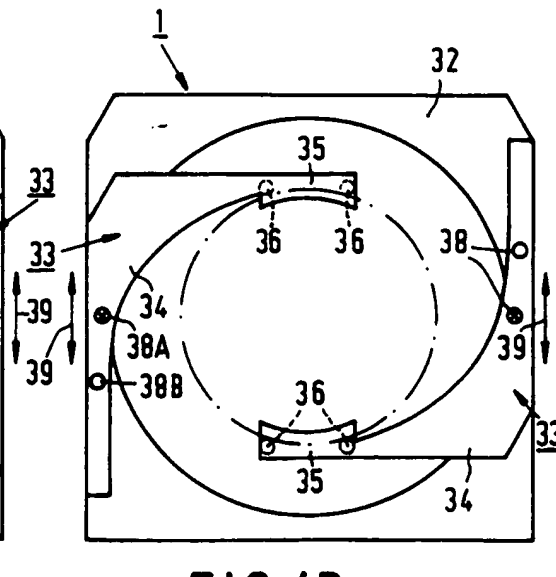


FIG. 4B

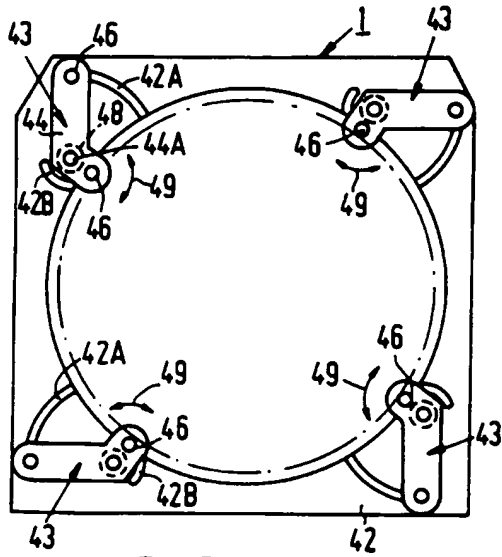


FIG. 5A

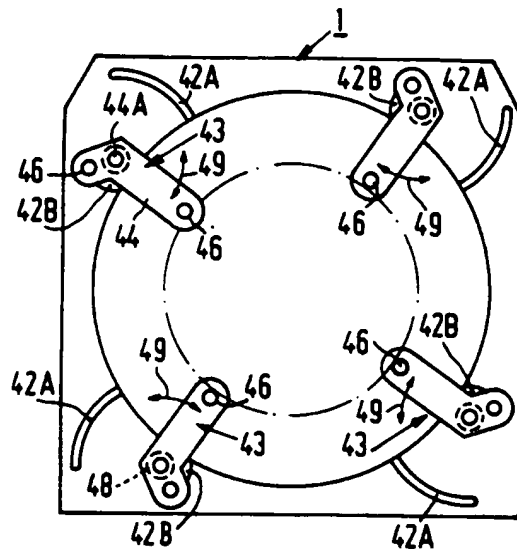


FIG. 5B

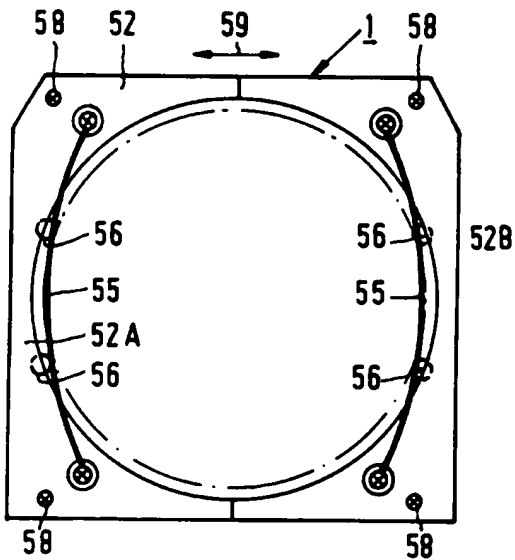


FIG. 6A

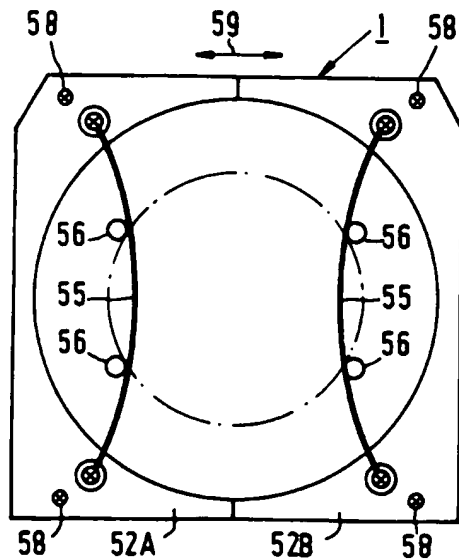


FIG. 6B

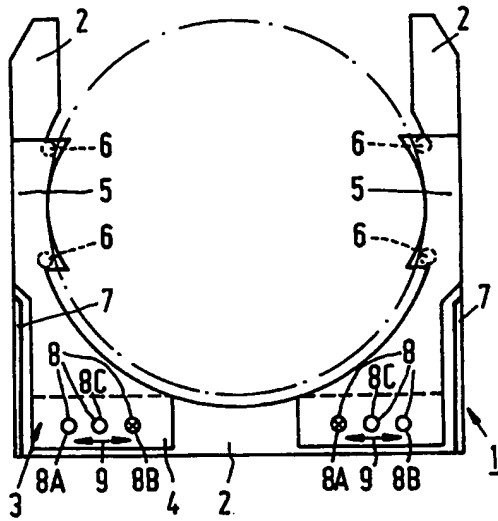


FIG. 7A

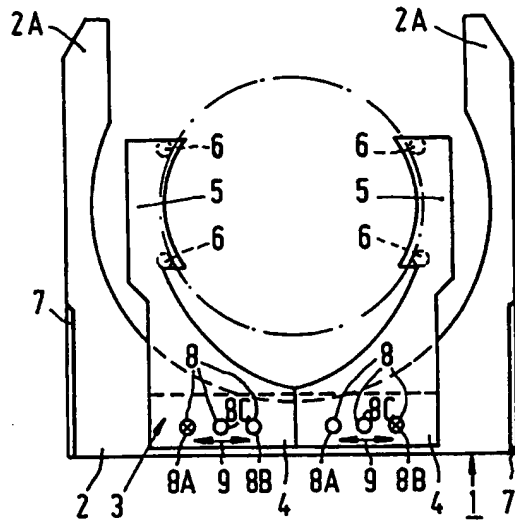


FIG. 7C

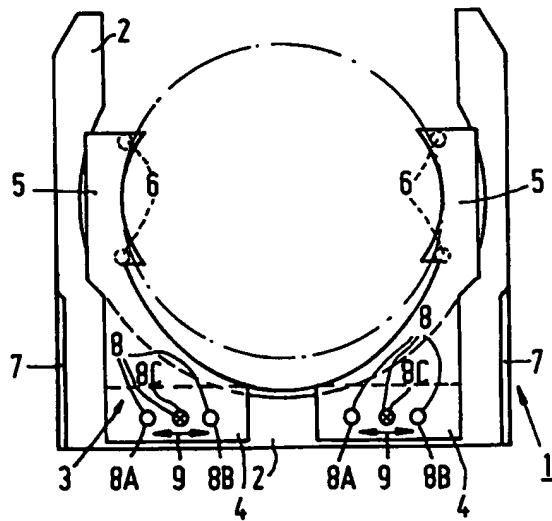


FIG. 7B

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